Lab3

Worksheet #1: After running the cp command, what file(s) are now in your home directory? There should be at least two: a ".sh" file, and a ".py" file.

When I type in "ls –l" command, it shows:

```
total 3
drwxr-xr-x 2 changbai eecs 60 Sep 19 15:13 si618FluxSetup
```

Files shows as below:

si618FluxSetup ,si618FluxSetup/ngram-job.py and si618FluxSetup/spark-run.sh

Worksheet #2: **What is the name of the last file in the listing for HFS folder /var/si618f17?**

ataset_review.json

Worksheet #3: **What year was Einstein first mentioned (as a noun) in Google Books data?**

```
einstein_NOUN 1921   4      4
```

year:1921

Worksheet #4: **After the Spark job completes, what are three files listed in your Hadoop File System output directory ./ngrams-out?**

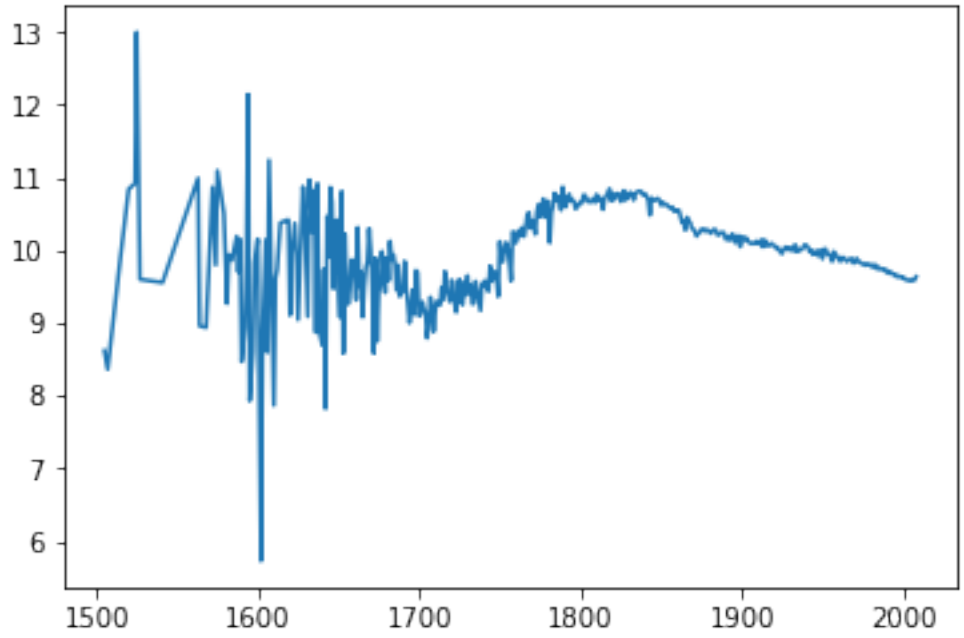
```
Found 3 items
-rw-r-----   3 changbai hadoop          0 2017-09-19 15:38 ngrams-out/_SUCCESS
-rw-r-----   3 changbai hadoop       5540 2017-09-19 15:38 ngrams-out/part-00000
-rw-r-----   3 changbai hadoop       5492 2017-09-19 15:38 ngrams-out/part-00001
```

Worksheet #5: **What were the average word lengths observed in books from the years 1520, 1597, and 1598 ?**

```
(1592, 8.937106918238994)
(1594, 12.142857142857142)
(1520, 10.84)
```

6. Bonus Challenge

Using the output file that is placed in your HFS output directory, produce a scatterplot of how average word length has changed over the full time period of the dataset (using your favorite spreadsheet or data viz program). Insert it below.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1600
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1800
1900
2000